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Norwegian Patent Application No. 89 3002

Amended Claims

Retained in parent after amendment

1. A heat source for use in a smoking article comprising a body of carbon-containing material having one or more longitudinal fluid passages therethrough characterized in that the or each passage (22) is defined by a plurality of intersecting surfaces, the geometric surface area of said fluid passages being at least about equal to the outside geometric surface area of the heat source (20).

2. The heat source of claim 1 wherein said one or more fluid passages (22) are formed in the shape of multi-pointed stars.

3. The heat source of claim 1 or 2 wherein the heat source (20) is substantially cylindrical.

Proposed for divisional application

4. The heat source of claim 1, 2 or 3 wherein said heat source (20) is comprised of charcoal particles.

5. The heat source of claim 4 wherein said charcoal particles are derived from softwood charcoal or hardwood charcoal.

6. The heat source of claim 4 or 5 wherein said charcoal is activated.

7. The heat source of claim 6 wherein said activation is accomplished by steam oxidation.

8. The heat source of any of claims 4 to 7 characterised by a carbon content of 89 weight percent.

9. The heat source of any of claims 4 to wherein said charcoal particles are up to 700 µm in size, preferably from 5 µm up to 30 µm.

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10. The heat source of any of claims 4 to 9 characterised by a void volume of 50% to 60%.

11. The heat source of any of claims 4 to 10 characterised by a pore size of 1μm to 2 μm.

12. The heat source of any of claims 4 to 11 wherein said charcoal particles have a BET surface area in the range of 50 m^2/g to 2000 m^2/g, preferably 200 m^2/g to 600.

13. The heat source of any of claims 4 to 12 characterised by an ash-forming inorganic substances content of up to 18%, preferably up to 8%.

14. The heat source of any of claims 4 to 13 wherein said heat source contains at least one burn additive, preferably one or more of potassium citrate, potassium carbonate, iron oxide, calcium oxalate, iron oxalate, potassium ions, iron ions, ferric citrate, ferrous acetate, a molybdenum compound, an aluminium compound, a calcium compound, a magnesium compound, a sodium compound, and oxidizers.

15. The heat source of any of claims 4 to 14 characterised by a density of 0.2 g/cc to 1.5 g/cc, preferably 0.5 g/cc to 0.8 g/cc.

16. A carbon-containing heat source for use in a smoking article characterized in that it is formed of charcoal particles derived from carbon-yielding precursors carbonized in an oxidizing atmosphere.

17. A process for making a heat source for a smoking article characterized by the steps of:

(a) mixing charcoal particles derived from carbon-yielding precursors that have been carbonized in an oxidizing atmosphere with one or more additives;

(b) extruding or molding said charcoal and additives in a desired shape; and

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(c) baking said extruded or molded charcoal and additives.

18. The process of claim 17 wherein one of said additives is a binder.

19. The process of claim 18 wherein said binder comprises a flour, preferably flour of wheat, flour of barley, flour of corn, flour of rye, flour of rice, flour of sorghum, flour of mayo, flour of soybean, flour of oat, and combinations thereof.

20. The process of claim 18 wherein said binder comprises a monosaccharide or a disaccharide, preferably sucrose.

21. The process of claim 18 wherein said binder is a two-part binder, preferably flour and a monosaccharide or disaccharide.

22. The process of any of claims 17 to 21 characterised by adding oil to said charcoal and additives during said mixing step, preferably a vegetable oil such as corn oil.

23. The process of any of claims 17 to 22 wherein said baking step is performed at a temperature of from 260 to 1648°C (500 to 3000°F), preferably from 760 to 982°C (1400°F to 1800°F).

24. The process of any of claims 17 to 23 wherein said baking step is performed in an inert atmosphere, preferably helium or argon.

25. The process of any of claims 17 to 24 characterised by drying said extruded or molded charcoal and additives prior to said baking step.

26. The process of claim 25 wherein said extruded or molded charcoal and additives is dried to a moisture content of between 2 and 11 percent, preferably between 4 and 6 percent.

27. The process of any of claims 17 to 26 further comprising cooling said extruded or molded charcoal and additives after said

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baking step, preferably to below 93°C (200°F).

28. The process of claim 27 wherein said extruded or molded charcoal and additives is cooled in an inert atmosphere.

29. The process of claim 27 wherein said extruded or molded charcoal and additives is cooled in an atmosphere of inert gases and oxygen or oxygen compounds.

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